UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,767	03/31/2004	Hankyu Moon	NECL-04-001	5251

7590   04/08/2008

Jeffery J. Brosemer, Ph.D., ESQ.
138 S. Telegraph Hill Road
Holmdel, NJ 07733

EXAMINER
BITAR, NANCY

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
04/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/813,767	MOON ET AL.
	Examiner	Art Unit	
	NANCY BITAR	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>28 March 2008</u>.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1 and 3-6</u> is/are pending in the application.
    4a) Of the above claim(s) <u>6</u> is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1 and 3-5</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>31 March 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments, in the RCE filed 03/28/2008, with respect to the rejections of

claims 1 and 3-5 under 35 U.S.C102 (b) have been fully considered but are moot in view of the

new ground(s) of rejection necessitated by the amendments. Therefore, the rejection has been

withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view

of Nicponski et al (US 7,274,832).

Examiner Notes

2.   Examiner cites particular columns and line numbers in the references as applied to the

claims below for the convenience of the applicant. Although the specified citations are

representative of the teachings in the art and are applied to the specific limitations within the

individual claim, other passages and figures may apply as well. It is respectfully requested that,

in preparing responses, the applicant fully consider the references in entirety as potentially

teaching all or part of the claimed invention, as well as the context of the passage as taught by

the prior art or disclosed by the examiner

Information Disclosure Statement

3.   The listing of references in the spec paragraph [0005] has not been considered. The

listing of references in the specification is not a proper information disclosure statement. 37

CFR 1.98(b) requires a list of all patents, publications, or other information submitted for

consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into

the specification but must be submitted in a separate paper." Therefore, unless the references

have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived
> by the manner in which the invention was made.

5.   Claims 1, 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al

(Y.Li, S.Gong, and H. Liddell in an article entitled "Support vector regression and classification

based on multi-view face detection and recognition", which was presented at FG2000) in view of

Nicponski et al (US 7,274,832).

        As to claim 1, Li et al teaches a method of estimating a pose of a human head in natural

scenes comprising the steps of: generating, a sparse representation of a human face by

transforming a raw facial image into sets of vectors representing fits of the face comprising fits

of whole facial features that represent the geometry (position, size and orientation) of the

features, to a random sparse set of model configurations (section 2; support vector machine);

training, the sparse representation to a set of face(s) in known poses (filter captures the changes

both in horizontal and vertical directions which correspond to yaw and tilt changes respectively

the filtered pattern are more representative than the original images; section 3.1 and figure 4 is a

sample of training faces); and determining, a pose of a head by comparing the trained

representation(s) to a facial image (the first 10 PCs and the reconstructed pattern from the first

20 PCs are compared to the original images and the filtered patterns, section 3.1; estimation head

pose using SVR). Note that the two Sobel operators detect the edge pf the face pattern which is

reduced feature of the face (section 3.1) which is the spare set. While Li et al meets a number of

the limitations of the claimed invention, as pointed out more fully above, Li fails to specifically

teach the sparse representation is a collection of projection to a number of randomly generated

possible configurations of the human face.

Specifically, Nicponski et al. teaches an face detection algorithm S was subject to

standardize face region size , decompose face region into sub-regions , ignore dependencies

between sub-regions , project sub-regions to lower dimension representation using PCA , code

projections using sparse coefficients , quantize sparse coefficients , decompose appearance and

position , ignore position for uncommon patterns , and vector quantize positional dependence for

common patterns and wherein the sparse coding scheme is further complicated by grouping the

last six coefficients pair-wise into groups and considering their sum square values when selecting

the six projection dimensions to retain. In this way, twelve coefficients are reduced to six for

subsequent. It would have been obvious to one of ordinary skill in the art to use the sparse

representation as a collection of projection of the human face in Li algorithm in order to provide

a best estimated image and capture enough information for accurate recognition. Therefore, the

claimed invention would have been obvious to one of ordinary skill in the art at the time of the

invention by applicant.

As to claim 3, Li et al teaches the method according to claim 2 wherein the transforming step further comprises the step of: collecting, salient features of the face image which are useful to estimate the pose of the face (nose bone, soft boundaries, face characteristics; section 3.2).

As to claim 4, Li et al teaches the method according to claim 3 wherein the transforming step further comprises the step of: suppressing, irrelevant variations of face appearance (figure 2 and section 3.2 and 4.3; note that PCA keeps essential features of recognition in order to remove the redundancy with respect to probability and gradient).

As to claim 5, Li et al teaches method according to claim 4 wherein the training step further comprises the step of: learning, using Support Vector Regression (SVR), a relation between the sparse representation and the pose(s) (estimating the pose using SVR pose estimator, section 3 and 3.1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew W. Johns/
Primary Examiner, Art Unit 2624

Nancy Bitar   3/31/2008